REMARKS

Claims 1-29 are pending in the current application. In an office action dated July 6, 2007 ("Office Action"), the Examiner rejected claims 10, 11, 12, and 14 under 35 U.S.C. § 112, second paragraph, rejected claim 9 under either 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) as being anticipated by, or obvious over, Fukuzawa et al., U.S. Patent No. 6,089,129 ("Fukuzawa"), rejected claims 10-12, 14, and 28-29 under 35 U.S.C. § 103(a) as being unpatentable over Fukuzawa, provisionally rejected claim 9 under the judicially created doctrine of non-statutory double patenting, allowed claims 1-9, and conditionally allowed claims 13 and 15-27.

In rejecting claim 14 under 35 U.S.C. § 112, second paragraph, the Examiner requested an explanation. Applicants' representative next endeavors to provide an explanation of claim 14. First, claim 14, as currently amended to incorporate claim 9 and to further clarify the claim, is provided below for the Examiner's convenience:

14. A storage-shelf-router integrated circuit employed within a storage shelf that contains a number of data-storage devices interconnected to two communications media, the storage-shelf-router integrated circuit including:
a first communications-medium port;
a second communications-medium port;
one or more processors;
a number of data-storage-device-link-port components that transmit data and commands to the number of data-storage devices through disk-drive links; and
routing logic for routing commands received through the first and second communications-medium ports to the one or more processors and for routing data received through the first and second communications-medium ports to the number of data-storage-device-link-port components; and
wherein the storage-shelf-router integrated circuit is assigned a unique number and is linked, through the first communications-medium port and a first communications medium, to **a first entity** and is linked, through the second communications-medium port and a second communications medium, to **a second entity**;
wherein **the first entity** is one of
a remote device external to the storage shelf, and
a storage-shelf-router integrated circuit having a unique number less than the assigned unique number; and
wherein **the second entity** is one of
a remote device external to the storage shelf, and

> a storage-shelf-router integrated circuit having a unique number greater than the assigned unique number. (emphasis added)

First, to address the Examiner's objection that "the first entity" and "the second entity" lack antecedent basis, Applicants' representative has bolded the first and second occurrences of these terms in claim 14. Applicants' representative cannot see an antecedent-basis problem in claim 14, as currently amended.

Second, to address the Examiner's request for an explanation of claim 14, Applicants' representative directs the Examiner to Figure 10 of the current application. Figure 10 shows a storage shelf 1010 that includes two storage-shelf-router integrated circuits 1014 and 1018. Storage-shelf-router integrated circuit 1018 can be seen to be connected both to an external entity, RAID controller 1006, as well as connected to storage-shelf-router integrated circuit 1014. Similarly, storage-shelf-router integrated circuit 1014 can be seen to be connected both to an external entity, RAID controller 1006, as well as connected to the storage-shelf-router integrated circuit 1014. Figure 13C shows a 4-storage-shelf-router-integrated-circuit storage shelf in which storage-shelf-router integrated circuit 1350 is connected to an external entity and to storage-shelf-router integrated circuit 1358, storage-shelf-router integrated circuit 1358 is connected to storage-shelf-router integrated circuits 1350 and 1360, storage-shelf-router integrated circuit 1360 is connected to storage-shelf-router integrated circuits 1358 and 1356, and storage-shelf-router integrated circuit 1356 is connected to an external entity and to storage-shelf-router integrated circuit 1360. Many other configurations are possible, including single-storage-shelf-router storage shelves. In general, the storage-shelf-router integrated circuit that represents one embodiment of the present invention has two communications ports (1502 and 1504 in Figure 15) that may link the storage-shelf-router integrated circuit to another storage-shelf-router integrated circuit, to two other storage-shelf-router integrated circuits, to an external entity, such as RAID controller, to two an external entities, or to another storage-shelf-router integrated circuit and an external entity. In a daisy-chained group of storage-shelf-router integrated circuits, as shown in Figure 13C, each storage shelf router integrated circuit is assigned a unique identifier, as discussed in the paragraph beginning on line 27 of page 52 of the current application:

S-fabric management frames, identified as such by a two-bit reserved subfield within the DF_CTL field of an FC-frame header that is used within the S fabric and that is referred to as the "S bits," are directed between storage-shelf routers via either X ports or Y ports and the point-to-point, internal FC links. *Each storage-shelf router is assigned a router number that is unique within the storage shelf, and that, in management frames, forms part of the FC-frame-header D_ID field. The storage-shelf routers are numbered in strictly increasing order*, with respect to one of the X and Y fabrics, and strictly decreasing order with respect to the other of the X and Y fabrics. For example, in Figure 24, storage-shelf routers 2402, 2403, 2404, and 2405 may be assigned router numbers 1, 2, 3, and 4, respectively, and thus may be strictly increasing, or ascending, with respect to the X fabric and strictly decreasing, or descending, with respect to the Y fabric. This ordering is assumed in the detailed flow-control diagrams, discussed below, but, as noted above, the relationship between fabrics and ports, and ascending and descending orders to ports, is configurable. (emphasis added)
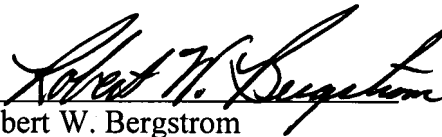
Thus, claim 14 is directed to a storage-shelf-router integrated circuit within a storage shelf connected to at least one external entity, such as a RAID controller or another storage-shelf-router integrated circuit.

Applicants' representative continues to believe that Fukuzawa neither anticipates nor makes obvious any of the current claims. However, Applicants have decided to accept the allowed and conditionally allowed claims, in the interest of obtaining an issued patent. Applicants' representative respectfully requests that claims 9-12, 14, and 28-29 be cancelled without prejudice, in the case that Applicants subsequently decide to further pursue these claims.

Applicants' representative wishes to thank the Examiner for allowing claims 1-8 and conditionally allowing claims 13 and 15-27. Applicants' representative has endeavored to rewrite claims 14 and 15 as directed by the Examiner. Should the Examiner have any further objections or require further clarification, Applicants' representative would be most happy to address such objections or requests for further clarification by telephone. Applicants' representative can be reached at (206) 621-1838.

In Applicant's representative's opinion, all the claims remaining in the current application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
Joseph H. Steinmetz et al.
Olympic Patent Works PLLC

Robert W. Bergstrom
Registration No. 39,906

Enclosures:
    Postcard
    Transmittal in duplicate
    Extension of Time in duplicate

Olympic Patent Works PLLC
P.O. Box 4277
Seattle, WA 98194-0277
206.621.1933 telephone
206.621.5302 fax